The 27th Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-27)

Enhancement of Space Capability Working Group (SCWG)

Concept Note

1. Objectives

Space activities in the Asia Pacific region have grown significantly in recent years, with more countries establishing national space agencies, and the number of new players such as private companies and universities are also increasing.

Aiming to enhance space technology development capabilities in the Asia-Pacific region, the SCWG serves as a platform to exchange information on technologies related to micro/small satellites that have been actively developed in our region in recent years, and to share engineering management methods and practices, such as Systems Engineering and Project Management (SE/PM) and Safety and Mission Assurance (S&MA), as well as their practical examples. This SCWG will contribute to the establishment and strengthening of technological foundation for space cooperation in our region.

2. SCWG Composition and Concept


New Trends in Space Technology Session

The following programs are planned for this session. We welcome presentations not only from space agencies but also from various players such as universities and private companies.

① New Players' Efforts of Satellite Development

With technological advancement, satellites are becoming smaller and lighter, and even low-cost satellites are becoming highly functional. Information exchange on satellite development efforts and technology development issues (fundamental technical issues, human resources, equipment shortages, etc.) by new players such as emerging space agencies, start-up companies, and universities is expected.

② Efforts for New Technologies Applicable to Satellites

Information exchange on new technological initiatives is expected, focusing on new technologies that can be used mainly for micro/small satellites (technologies, parts, and components that contribute to miniaturization, weight reduction, and high functionality). Presentations from space industry participants to introduce their new technologies and products would be welcomed.

③ Efforts related to Space Debris Problem

To contribute to the realization of stable use of outer space, information exchange is expected on the efforts to tackle space debris problem (private businesses for space debris countermeasures, risk avoidance assist tools from debris collision, etc.).

SE/PM Session

Today, space technology is strongly expected to contribute to solving social issues on the ground. Under such circumstances, there is an increasing interest and need for SE/PM to accurately grasp the needs of society, analyze the requirements of stakeholders, design spacecraft that plays a part in a system that meets those needs and requirements, and ensure success of projects.

In this session, we will give an overview of SE/PM methods and practices, along with their effectiveness and practical examples, to improve our region’s overall ability to utilize space technology to solve social issues and to ensure the success of our projects.

① SE/PM Overview

SE/PM methods will be introduced from an academic point of view to deepen awareness of their
background, necessity, and effectiveness.

② History of SE/PM Implementation and Evolution at JAXA

③ SE/PM Practical Examples (space agencies, industry, socio-economic development projects)

④ Exchange of Opinions among Participants

Participants will be divided into several groups to exchange opinions on interests, expectations, needs, issues, etc.

Since this session is a brand-new session, we welcome the participation of not only those who are already involved in SE/PM activities but also those who are interested in implementing these methods in the future. This session will provide participants with an opportunity to network with colleagues from the region and to form a SE/PM community in our region.

**S&MA Session**

It is important to ensure a high degree of safety, reliability, and quality in order for spacecraft to function reliably in outer space. We have found that the promotion of S&MA activities has contributed to a steady decrease in satellite malfunction in orbit. Thus, interest and needs for S&MA are growing.

Efforts to explore the application of the S&MA method have also begun in small satellite projects of venture companies and universities with limited resources such as funds and human capital compared to space agencies.

In this session, we will give an overview of S&MA method and practices, along with their effectiveness and practical examples, to improve our ability to ensure a high degree of safety, reliability, and quality in all areas of our spacecraft development.

① S&MA Overview

S&MA method will be introduced to deepen the awareness of its effectiveness

② New Trends regarding S&MA

Efforts toward the application of S&MA method in small satellite projects of venture companies and universities will be introduced. In addition, new global S&MA trends regarding S&MA in the world including those from NASA, ESA, etc. will be shared.

③ S&MA Initiatives in Each Country

Initiatives and issues concerning S&MA activities in each member country will be introduced.

Since this session is a newly launched session, we welcome the participation of not only those who are already involved in S&MA activities but also those who are interested in implementing S&MA method in the future. This session will provide participants with an opportunity to network with colleagues from the region and to form a S&MA community in our region.